AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A broadband non-resonant antenna device for wireless transmission of information using electromagnetic signals, comprising a metal sheet layer ~~(2)~~, forming a plane, with a slotline ~~(3)~~ that comprises a first part ~~(3a)~~ and a second part ~~(3b)~~, where the side of the second part ~~(3b)~~ that is the most distant from the first part ~~(3a)~~ transcends into a widening open-ended tapered slot ~~(6)~~ in the metal sheet layer ~~(2)~~, where the device additionally comprises a feeding line ~~(4)~~ in the metal sheet layer ~~(2)~~, which feeding line ~~(4)~~ comprises a feeding part ~~(7)~~, with a first end ~~(7a)~~ and a second end ~~(7b)~~, and gaps ~~(8, 9)~~ separating the feeding part ~~(7)~~ from the surrounding metal sheet layer ~~(2)~~ by a certain distance, where the slotline ~~(3)~~ is intersected by the feeding line ~~(4) characterized in that~~ wherein the antenna device is made from a sheet of metal, forming the metal sheet layer ~~(2)~~.

2. (Currently Amended) Antenna device according to claim 1, ~~characterized in that~~wherein the feeding part divides the slotline ~~(3)~~ into the first part ~~(3a)~~ and the second part ~~(3b)~~ of the slotline ~~(3)~~.

3. (Currently Amended) Antenna device according to claim 1 ~~or 2~~, wherein~~characterized in that~~ the first end ~~(7a)~~ of the feeding part ~~(7)~~ is connected to the metal sheet layer ~~(2)~~ after having intersected the slotline ~~(3)~~.

4. (Currently Amended) Antenna device according to ~~any of the preceding claims~~claim 1, wherein ~~characterized in that~~ the tapered slot ~~(6)~~ has an exponential form.

5. (Currently Amended) Antenna device according to ~~any of the preceding claims~~claim 1, wherein~~characterized in that~~ the side of the first part ~~(3a)~~ of the slotline ~~(3)~~ that is the most distant from the second part ~~(3b)~~ transcends into an essentially two-dimensional cavity ~~(5)~~.

6. (Currently Amended) Antenna device according to claim 5, wherein ~~characterized in that~~ the essentially two-dimensional cavity ~~(5)~~ has a circular form.

7. (Currently Amended) Antenna device according to ~~any of the claims~~claim 1 ~~to 4~~, wherein~~characterized in that~~ the side of the first part ~~(3a)~~ of the slotline ~~(3)~~ that is the most distant from the second part ~~(3b)~~ is short-circuited to the metal sheet layer ~~(2)~~.

8. (Currently Amended) Antenna device according to ~~any of the preceding claims~~claim 1, wherein ~~characterized in that~~ the first end ~~(7a)~~ of the feeding part ~~(7)~~ is positioned past the slotline ~~(3)~~, with the gaps ~~(8, 9)~~ continuing at each of the sides of the feeding part ~~(7)~~.

9. (Currently Amended) Antenna device according to claim 8, wherein ~~characterized in that~~ the gaps ~~(8, 9)~~ are joined at the first end ~~(7a)~~ of the feeding part ~~(7)~~.

10. (Currently Amended) Antenna device according to claim 9, wherein ~~characterized in that~~ the joining part of the gaps ~~(8, 9)~~, at the first end ~~(7a)~~ of the feeding part ~~(7)~~, forms an essentially two-dimensional cavity ~~(11)~~.

11. (Currently Amended) Antenna device according to ~~any of the preceding claims~~claim 1, wherein ~~characterized in that~~ the second end ~~(7b)~~ of the feeding part extends to an edge ~~(2')~~ of the metal sheet ~~(2)~~.

12. (Currently Amended) Antenna device according to ~~any of the claims~~claim 1-~~6~~, wherein ~~characterized in that~~ an external feeding ~~(19, 20, 55)~~ is attached to the second end ~~(7b)~~ of the feeding part ~~(7)~~.

13. (Currently Amended) Antenna device according to ~~any of the preceding claims~~claim 1, wherein ~~characterized in that~~ electrical contact is obtained between those ground planes ~~(61, 62)~~ that surround the centre conductor ~~(7)~~ near the position where the centre conductor ~~(7)~~ intersects the slotline ~~(3)~~.

14. (Currently Amended) Antenna device according to ~~any of the preceding claims~~claim 1, wherein ~~characterized in that~~ said electrical contact is obtained by means of a metal bridge ~~(63, 63', 64)~~.

15. (Currently Amended) A broadband non-resonant array antenna comprising a plurality of similar antenna devices ~~(1a, 1b, 1c)~~, for wireless transmission of information using electromagnetic signals, wherein ~~characterized in that~~ at least one of the included antenna devices ~~(1a, 1b, 1c)~~ has the features described in ~~any one of the claims~~ claim 1[[-14]].

16. (Currently Amended) Array antenna according to claim 15, wherein ~~characterized in that~~ the antenna devices ~~(1a, 1b, 1c)~~ are positioned beside each other on the metal sheet layer ~~(23)~~.

17. (Currently Amended) Array antenna according to claim 16, wherein ~~characterized in that~~ a plurality of metal sheet layers ~~(23)~~, comprising the antenna devices ~~(1a, 1b, 1c)~~ positioned beside each other, are placed in a plurality of rows ~~(26a, 26b, 26c)~~.

18. (Currently Amended) Array antenna according to ~~any one of the claims~~claim 15-~~17~~, wherein ~~characterized in that~~ for each included antenna device ~~(1a'; 1a, 1b, 1c)~~, one orthogonally arranged antenna device ~~(1a''; 30, 31, 32)~~ is arranged.

19. (Currently Amended) Array antenna according to ~~any one of the claims~~claim 15-~~18~~, whereinc~~h a r a c t e r i z e d i n that~~ the external feeding comprises at least one feeding module ~~(19, 20, 55)~~ of an active or a passive type connected to at least one of the antenna devices ~~(1a, 1a', 1a'', 1b, 1c, 30, 31, 32, 56, 57)~~.

20. (Currently Amended) Array antenna according to claim 19, whereinc~~h a r a c t e r i z e d i n that~~ the at least one feeding module ~~(19, 20, 55)~~ comprises a variable phase-shifter and/or power attenuators.

21. (Currently Amended) Array antenna according ~~any one of the claims~~to claim 19 ~~or 20~~, whereinc~~h a r a c t e r i z e d i n that~~ the at least one feeding module ~~(19, 20, 55)~~ may be connected to a control unit for power and phase control.

22. (Currently Amended) Array antenna according ~~any one of the claims~~to claim 19-~~21~~, whereinc~~h a r a c t e r i z e d i n that~~ the at least one feeding module ~~(19, 20, 55)~~ is electromagnetically coupled to at least one of the antenna devices ~~(1a, 1a', 1a'', 1b, 1c, 30, 31, 32 56, 57)~~.

23. (Currently Amended) Array antenna according ~~any one of the claims~~to claim 18-~~22~~, whereinc~~h a r a c t e r i z e d i n that~~ the at least one feeding module ~~(19, 20, 55)~~ is arranged to feed the at least one antenna device ~~(1a, 1a', 1a'', 1b, 1c, 30, 31, 32, 56, 57)~~ in such way that circular polarization is obtained.